



Case Report

Post-mortem injuries by a dog: A case report

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ABSTRACT

Despite its unlikely occurrence, post-mortem animal depredation is not unknown to forensic pathologists. In the case at issue, the corpse of a dead woman presented extensive facial wounds, which were then traced back to the dog she owned. A small specimen of injured tissue was subjected to species diagnosis, and came back positive for human and canine antigens, which confirmed the presence of biological material of canine origin on the body. The less than usual post-mortem injury pattern described herein clearly highlights the possibility that animal depredation on a corpse may occur soon after death, and underscores the diagnostic potential posed by commonly available and low expensive testing methods such as serological species diagnosis.

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1. Introduction

Post-mortem interference by a number of different animal species is a phenomenon well-known to forensic investigators.^{1,2} Due to their ability to affect the appearance of a corpse, alter the scene surrounding it and create post-mortem artefacts, animals pose a major problem to forensic death investigators.³ Although most cases of death involving the presence of domestic animal bite marks are actually non-violent in nature, these marks are often mistaken for signs of criminal assault,⁴ which highlights the importance of an accurate post-mortem examination to clarify whether such an injury occurred before or after the time of death.⁵ Post-mortem animal bite marks typically feature unmistakable wound edge patterns and abrasions with little or no signs of bleeding.^{6,7} In the following case of post-mortem animal depredation we used a multidisciplinary approach to assess both the cause of death and the aetiology of the injuries we observed on the corpse.

2. Case report

A 43 year-old female living in a flat with her three pets, one dog and two cats, was found dead by her husband at 7.15 a.m. She lay unconscious on the bathroom floor, next to the bathtub, in a right lateral recumbent position, wearing a nightgown, her face covered with large lesions. Their last conversation had taken place the previous evening at 11.30 p.m. Despite the extent and gravity of the aforementioned facial wounds, crime scene investigation revealed the virtual absence of blood traces around the corpse; even the nightgown the deceased was supposedly wearing at time of death

presented blood splatter patterns utterly inconsistent with a violent death involving extensive facial trauma. Upon arrival at the hospital, cardiopulmonary resuscitation was attempted, but the woman was declared dead. The deceased had a history of heart disease and was being treated accordingly. A forensic autopsy was performed to determine the cause of death and to confirm what appeared a likely case of post-mortem animal interference.

3. Autopsy findings

Twenty-four hours after death, the corpse was rinsed and an autopsy performed. On external examination, it appeared well-nourished, with post-mortem lividity of normal intensity and consistent with the supine position. A number of post-mortem injuries likely inflicted by one or more animals covered its face, and a large amount of subcutaneous fatty tissue was missing (Fig. 1). The nose, in particular, was almost totally missing (Fig. 2), which made the nasal cavities and bones visible; remarkably, no blood stains surrounded this wound nor other wounded areas of the face. The upper lip was also severely lacerated, except for one 2.5 cm segment on the left and one 0.5 cm segment on the right. In addition to some minor grazes around the lower lip we also noticed a number of stippled wounds along with groups of multiple small superficial lacerations, especially on the right hemiface. The wound margins, which showed no evidence of vital subcutaneous bleeding (Figs. 3 and 4), were irregular in shape and finely serrated, the likely result of the action of paw nails and dog fangs. The rest of the corpse appeared unscathed except for a small number of bluish bruises; no defense injuries were found. Before proceeding with the dissection, and in consideration of the numerous wounds on the face, a cranial X-ray was performed

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Fig. 1. Frontal view of the victim showing large lacerations.



Fig. 2. Lateral view of the victim showing complete missing of the nose.

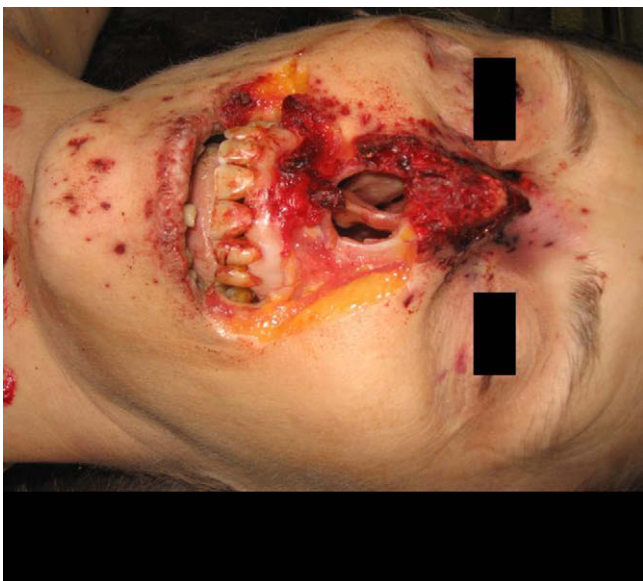


Fig. 3. Frontal view of the victim showing absence of vital subcutaneous bleeding.

and came back negative both for bone fractures and for the presence of foreign bodies (Fig. 5).

Internal examination revealed the signs of a large haemorrhage in the subarachnoid space, while the other organs showed no abnormalities. Besides, we found no evidence of blood aspiration.

The histological analysis of a lip fragment came back negative both for bleeding and any other vital reaction. The examination of the formalin-fixed brain confirmed the occurrence of a large haemorrhage in the subarachnoid space: the basilar artery showed a 1 cm aneurysm with a 0.3 cm rupture on its wall (Fig. 6). No alcohol or drugs were found in the blood.



Fig. 4. View of the victim showing absence of vital subcutaneous bleeding.



Fig. 5. X ray- No fractures or foreign bodies.



Fig. 6. View of the aneurism of the basilar artery.

Based on our autopsy and to the histological findings, we determined that the woman had died from the rupture of a basilar artery aneurysm.

4. Serological analysis

To assess whether biological animal traces were present in and around the lesions covering the face of the deceased, we checked a cheek specimen for species diagnostic markers, namely human, dog, cat and rabbit antigens. These tests are surely less expensive and very fast, although less sensitive than DNA analysis.^{8,9}

The cheek specimen was cut into small pieces, resuspended in 100 µl of dH₂O and vortexed for some seconds. We created five small dimples on a plate of agar, one in the middle and the remaining four at equal distances from the centre. We then placed an aliquot of cheek specimen extract onto the central dimple, and

completed the layout by placing serum aliquots containing human, dog, cat and rabbit antigens onto the remaining dimples. The test came back positive for human and dog antigens, but negative for cat and rabbit antigens, thus confirming that the injuries at issue were dog bite-related (Fig. 7).

5. Discussion

A 43 year-old female died of natural causes, namely from a ruptured basilar artery aneurysm and then fell victim to post-mortem depredation by her domestic dog. We determined the post-mortem aetiology of the injuries on her body on the basis of the virtual absence of blood from the crime scene and from the absence of signs of vital reactions, such as haemorrhagic infiltration or marginal inflammation. We then used species diagnosis to identify the animal's biological material, a result that, elicited as it was after her face had been rinsed upon arrival at the emergency room, is consistent with the presence of abundant biological material from a dog. In addition, the particular shape and pattern of the abrasions and lacerations was consistent with the action of canine fangs and/or paws.¹⁰

In the case at issue, damage was confined to soft tissues and uncovered areas of the body, especially the nose and mouth. The absence of self-defense injuries or signs of vital trauma provided us with further differential clues between artificial post-mortem bite injuries on the one hand and intravital acquired bite injuries on the other, which are generally observed in combination with self-defense wounds.^{11,12} Like most similar cases reported in literature,^{13–15} this report presents a case in which the action of a domestic animal played no role in the causation chain leading to the home death itself, which had instead resulted from natural causes.

The less than usual post-mortem injury pattern we have described clearly highlights the possibility that animal depredation on a corpse may occur soon after death (less than 7 h), and underscores the diagnostic potential posed by commonly available testing methods such as serological species diagnosis.

6. Conflict of Interest

None declared.

Funding

None declared.

Ethical Approval

None declared.

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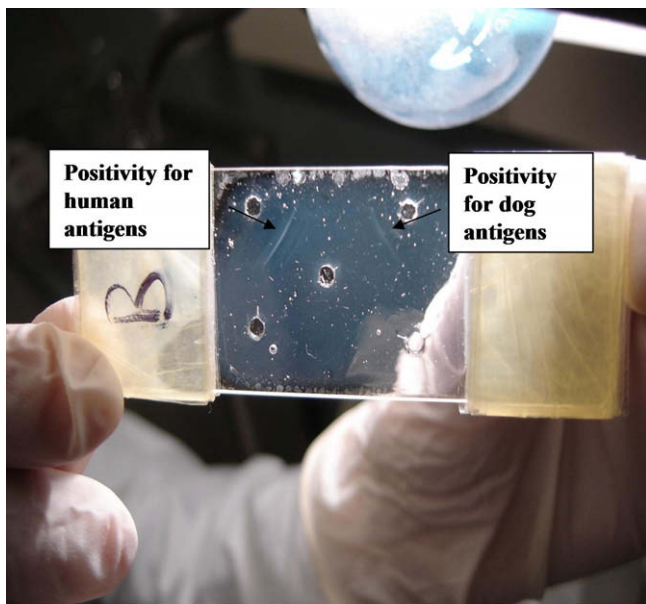


Fig. 7. Results of species diagnosis.

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